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Calculation of the Suppression Factor for Bound Neutron-Antineutron Transformation

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I review and revisit the calculation of the lifetime of nuclei due to neutron-antineutron oscillations. It is stressed that the oscillation and the subsequent annihilation take place mainly outside the nucleus and thus hardly suffer from drastic renormalization due to the nuclear medium. The ingredients of the calculation can be safely extracted from nuclear shell-model wave-functions, and optical models fitting the low-energy data on antinucleon-nucleus interaction. The main result is that the lifetime of a nucleus behaves as $T = T_R \, \tau_{n\bar{n}}^2$, with a factor T_R, often referred to as *reduced lifetime* or *suppression factor* of about 10^{22-23} s^{-1}. A remarkable feature is that T_R is stable against variations of the antinucleon-nucleus potential.

Contribution Title

Calculation of the Suppression Factor for Bound Neutron-Antineutron Transformation

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